



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,633	11/15/2001	Tarou Kaneko	2000P348871	7414

21254 7590 03/10/2004

MCGINN & GIBB, PLLC
8321 OLD COURTHOUSE ROAD
SUITE 200
VIENNA, VA 22182-3817

EXAMINER

BARTH, VINCENT P

ART UNIT PAPER NUMBER

2877

DATE MAILED: 03/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,633

Applicant(s)

KANEKO, TAROU

Examiner

Vincent P. Barth

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,3,6-14 and 16-31 is/are allowed.
- 6) ☒ Claim(s) 1,4,5 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1101,1203.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4, 5 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Referring to Claims 4 and 5, said claims contain language which is indefinite, and is as follows: "... a plurality of signal sources each provided for each *peculiar* wavelength ..."

(emphasis added). MPEP §2173.02 states that, "If the scope of the invention sought to be patented cannot be determined from the language of the claims with a reasonable degree of certainty, a rejection of the claims under 35 U.S.C. 112, second paragraph is appropriate.", citing In re Wiggins, 488 F.2d 538, 179 USPQ 421 (CCPA 1973). The term, as written, does not set forth the metes and bounds of the claim appropriately, therefore the claim must be amended. The term is likely the result of difficulties in translation, and wherein a term such as "individual" may have been intended, which the Examiner suggests as an amendment, provided that this is an appropriate translation from the original Japanese priority document. Since said term also appears in the Specification, Applicants must avoid the introduction of new matter into the disclosure. However, the claims have been discussed below as each may best be understood.

4. Referring to Claim 15, said claims contain language which is indefinite, and is as follows: "... the other terminal disposes on a *predetermined position* on the substrate ..." (emphasis

Art Unit: 2877

added). MPEP §2173.02 states that, "If the scope of the invention sought to be patented cannot be determined from the language of the claims with a reasonable degree of certainty, a rejection of the claims under 35 U.S.C. 112, second paragraph is appropriate.", citing In re Wiggins, 488 F.2d 538, 179 USPQ 421 (CCPA 1973). The term, as written, does not set forth the metes and bounds of the claim appropriately, therefore the claim must be amended. In particular, it is not clear which physical configuration or embodiment such "predetermined position" is intended to correspond. Moreover, due to such indefiniteness, the remaining language in the claim is not clear, since it derives its meaning from the phrase identified above in quotes. Accordingly, the claim will be carefully reconsidered on the merits upon either an amendment, or an appropriate explanation in the reply to the instant Office Action.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto, et al., Japanese Patent Pub. No. 09-049937 (18 Feb. 1997), in view of Nakajima, et al., U.S. Pat. No. 6,404,946 (11 Jun. 2002).

7. Referring to Claim 1, Okamoto discloses that an array waveguide diffraction grating (AWG) comprises a signal input waveguide 11 coupled to a slab waveguide 14 comprising a

Art Unit: 2877

plurality of inputs (Fig. 1). Okamoto discloses that each wavelength of the wavelength multiplexed system is monitored, thereby implying that the input signals are of wavelengths different from each other (see Abstract). See MPEP §2144.01. Okamoto discloses that the waveguide for monitoring input 12 is also coupled to the slab waveguide 14, and that light beams of two diffraction orders are generated from the input (Fig. 1; and Abstract). Those of ordinary skill in the art would understand the two diffraction orders disclosed to be the 0-th order and the 1-st order diffraction components. Okamoto further discloses that the signal monitor 12 is disposed such that it is deviated from the center line of the slab waveguide 14 (see Abstract). Therefore, the signal monitoring component 12 is disposed to detect the 1-st order diffraction signals, which are deviated from the center line 0-th order diffraction signal. Okamoto does not explicitly disclose that the output ports are disposed to focus the 0-th order diffraction beam. However, Nakajima discloses that typically the type of slab waveguide disclosed in Okamoto is configured to focus the signals on the opposite face of the curved slab (col. 2, lns. 35-48; and Fig. 8). Okamoto and Nakajima are analogous art, since they are from a similar problem solving area, in that each involves an AWG in which a curved slab waveguide is coupled to an input waveguide and a monitoring waveguide. See Medtronic, Inc. v. Cardiac Pacemakers, 721 F.2d 1563, 1572-1573, 220 USPQ 97, 103-104 (Fed. Cir., 1983). The motivation for combining the reference would have been to provide the typical configuration in which signals from the slab are focused, such also being implicit in the Okamoto reference. Accordingly, it would have been obvious to those skilled in the art to combine the references, at the time of the invention, in order to obtain such benefit.

Allowable Subject Matter

8. Claims 2, 3 and 6-14 and 16-31 are allowable, since the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations set forth therein.

9. Referring to Claim 2, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an AWG having a slab waveguide comprises a plurality of input ports for inputting signals of different wavelengths, an output port disposed on the focus of the 0-th order diffraction beams, a higher order diffraction beam reflecting means disposed on the focus position of the beams other than the 0-th order, in combination with the remaining limitations in the claim. Referring to Claim 3, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an AWG having a slab waveguide comprises a plurality of input ports for inputting signals of different wavelengths, an output port disposed on the focus of the 0-th order diffraction beams, a higher order diffraction beam reflecting means disposed on the focus position of the beams other than the 0-th order, in combination with the remaining limitations in the claim. Referring to Claims 6-8, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an optical transmission system comprises an input waveguide for inputting signals of different wavelengths, a channel waveguide with lengths increasing at a predetermined difference, an input slab waveguide interconnecting the channel array and the input waveguide, an output waveguide disposed on the focus of the 0-th order diffraction beams, a monitor signal separating means at the focus position

Art Unit: 2877

of the beams other than the 0-th order, an output level detecting means for detecting the output levels of the individual wavelengths, in combination with the remaining limitations in the claim. Referring to Claim 9, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an AWG comprises an input waveguide for inputting signals of different wavelengths, a channel waveguide with lengths increasing at a predetermined difference, an input slab waveguide interconnecting the channel array and the input waveguide, an output waveguide disposed on the focus of the 0-th order diffraction beams, and an signal returning means for causing a signal converged on the focus position of the higher order diffraction beams to return to the focus position to the input side, in combination with the remaining limitations in the claim. Claim 10 is allowable based on its dependency upon the claim from which it is dependent. Referring to Claim 11, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an AWG comprises an input waveguide for inputting signals of different wavelengths, a channel waveguide with lengths increasing at a predetermined difference, an input slab waveguide interconnecting the channel array and the input waveguide, an output waveguide disposed on the focus of the 0-th order diffraction beams, a reflecting means disposed at the other terminal of the waveguide for reflecting the signal lead out from the monitor signal port, in combination with the remaining limitations in the claim. Referring to Claims 12-14, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an AWG comprises a substrate, an input waveguide for inputting signals of different wavelengths, a channel waveguide with lengths increasing at a predetermined difference, an input slab waveguide interconnecting the channel array and the input waveguide, an output waveguide

Art Unit: 2877

disposed on the focus of the 0-th order diffraction beams, and a waveguide disposed on the substrate and connecting the monitor signal output port and monitor signal input port, in combination with the remaining limitations in the claim. Referring to Claims 16 and 17, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an AWG comprises an input waveguide for inputting signals of different wavelengths, a channel waveguide with lengths increasing at a predetermined difference, an input slab waveguide interconnecting the channel array and the input waveguide, an output waveguide disposed on the focus of the 0-th order diffraction beams, and a feedback waveguide/fiber for feeding back a multiplexed monitoring signal, in combination with the remaining limitations in the claim. Referring to Claim 18, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an AWG comprises an input waveguide for inputting signals of different wavelengths, a channel waveguide with lengths increasing at a predetermined difference, an input slab waveguide interconnecting the channel array and the input waveguide, an output waveguide disposed on the focus of the 0-th order diffraction beams, and an signal returning means for causing a signal converged on the focus position of the higher order diffraction beams to return to the focus position to the input side, in combination with the remaining limitations in the claim. Claims 19-27 are allowable based on their dependency upon the claim from which each is dependent. Referring to Claim 28-31, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an optical transmission system comprises a means for outputting signals of individual wavelengths as parallel signals, a node provided on the optical transmission path and including an arrayed waveguide grating, a demultiplexer

Art Unit: 2877

constituted by an arrayed waveguide grating for separating the individual wavelengths, a slab waveguide disposed on the focus of the 0-th order diffraction beams, a monitor signal port at the focus position of the beams other than the 0-th order, in combination with the remaining limitations in the claim.

Comments

10. The Specification is objected to based upon the use of the term “peculiar” when referring to wavelengths at page 6, in the second full paragraph, and page 8, in the first full paragraph. Although the intended may have been a term such as “individual”, the Specification should be amended to include the proper term, without introducing new matter. In the reply to the instant Office Action, a discussion identifying the particular term in the Japanese priority document would avoid difficulties concerning new matter.
11. Figures 25 and 26 represent prior art illustrations, thus it would be useful to amend said drawings to include a label at the bottom of each with the term “prior art” in parentheses.
12. Claims 4 and 5 have been rejected pursuant to §112 second paragraph, but would be allowable if the claims were amended as suggested above, provided that such is an appropriate translation from the original Japanese priority document.

CONCLUSION

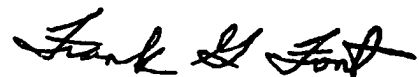
13. Applicants' Claims 1, 4, 5 and 15 are rejected based on the reasons set forth above.

14. Applicants' Claims 2, 3, 6-14 and 16-31 are allowable based on the reasons set forth above.

15. Any inquiries concerning this communication from the Examiner should be directed to Vincent P. Barth, whose telephone number is 571-272-2410, and who may be ordinarily reached from 9:00 a.m. to 5:30 p.m., Monday through Friday. The fax number for the group before final actions is 703-872-9306.

16. If attempts to reach the Examiner prove unsuccessful, the Examiner's supervisor is Frank G. Font, who may be reached at 571-272-2415.

17. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.



Frank G. Font
Supervisory Patent Examiner
Technology Center 2800